

Extrait du <BR/>UREM :<BR/>Unité de Recherche sur l'Enseignement des Mathématiques

<http://www.ulb.ac.be/sciences/urem>

# ICMI-News N° 6 Octobre 2008

- Extra-muros -



Date de mise en ligne : mardi 11 novembre 2008

---

<BR/>UREM :<BR/>Unité de Recherche sur l'Enseignement des  
Mathématiques

---

La Newsletter de l'ICMI (N° 6 Octobre 2008) a été envoyée à ses adhérents.

Ci-dessous la copie de cette lettre

<h3 class="spip">ICMI News 6 : October 2008</h3>

A Bimonthly Email Newsletter from the ICMI-International Commission on Mathematical Instruction

Editor : Jaime Carvalho e Silva, Dep. Matematica, Universidade de Coimbra, Portugal

## CONTENTS

1. Editorial : About the ICMI Studies --- and a Call For Proposals
  2. Symposium Celebrating the Centennial of the ICMI
  3. Proceedings of the Symposium Celebrating the Centennial of the ICMI
  4. ICTMA 14
  5. New e-journal : Educational Designer
  6. Calendar of Events of Interest to the ICMI Community
  7. Subscribing to ICMI News
- 

### *1. Editorial : About the ICMI Studies --- and a Call For Proposals*

Among the various activities organised or supported by the International Commission on Mathematical Instruction, the ICMI Studies programme stands out as a particularly interesting component that has acquired over the years a growing importance and influence on the field.

The very first ICMI Study Conference was held in Strasbourg in March 1985, but its origin goes back to a few years earlier. Geoffrey Howson, ICMI Secretary[-General] from 1983 to 1990, has indicated that the idea of "ICMI Studies" developed from conversations that he had in the early 1980s with Bent Christiansen, then ICMI Vice-President since 1975. In his personal overview after his two terms as ICMI President (see ICMI Bulletin no. 29, December 1990, p. 3), Jean-Pierre Kahane refers to a meeting that he had in Orsay at the end of 1982, just prior to the beginning of his presidency, with both Howson and Christiansen --- then respectively incoming ICMI Secretary[-General] and continuing VP ---, as well as with Ed Jacobsen, from UNESCO. As stated by Kahane himself, a large part of the ICMI activities for the following years was planned during this meeting, including the project of ICMI Studies as well as the themes of the first four Studies. In his first "Message from the President" (ICMI Bulletin no. 13, February 1983, pp. 1-2), Kahane mentions these four themes as "key problems" that ICMI is facing in its aim of "further[ing] mathematics education", but insisting that the objective is not to "seek an 'ICMI approved' solution" to these problems, but rather "to create conditions for exchange of views and information, and a structure for cooperation and extended communication". Still Kahane in this first message does not mention the programme of Studies where these problems will be addressed, and it is in a report from the Executive Committee appearing in the following issue of the Bulletin (No. 14, October 1983, pp. 5-8) --- thus exactly 25 years ago ! --- that Geoffrey Howson explicitly refers publicly to the "four studies which ICMI is hoping to undertake".

Since then, the ICMI Studies have regularly taken place at the rhythm of more or less one Study Conference per year. The variety of the themes covered in these Studies is rather impressive (I am providing here shortened wordings of the topics, with the year of the Study Conference --- the full versions of the themes are accessible on the ICMI website) :

- 1-) Influence of Computers and Informatics (1985) ; 2-) School Mathematics (1986) ; 3-) Service Subject (1987) ; 4-)

Mathematics and Cognition (no Study Conference) ; 5-) Popularisation (1989) ; 6-) Assessment (1991) ; 7-) Gender (1993) ; 8-) Research (1994) ; 9-) Geometry (1995) ; 10-) History (1998) ; 11-) University Mathematics (1998) ; 12-) Algebra (2001) ; 13-) East/West Math Education (2002) ; 14-) Applications and Modelling (2004) ; 15-) Teacher Education (2005) ; 16-) Challenges in and Beyond the Classroom (2006) ; 17-) Technology (Revisited) (2006) ; 18-) Statistics (2008) ; 19-) Proof and Proving (2009) ; 20-) Mathematics and Industry (2010) ; 21-) Multilingual Contexts (2010).

Besides the natural collaboration with the International Mathematical Union, it is of interest to note that two ICMI Studies have been organised in collaboration with other institutions, namely with the International Association for Statistical Education (IASE --- Study 18) and with the International Council for Industrial and Applied Mathematics (ICIAM --- Study 20). The ICMI Executive Committee is really enthusiastic at the possibilities offered by such collaborations.

The following criteria have been developed by the ICMI EC to guide the selection and setting up of a Study. An ICMI Study needs

- &mdash; to tackle a substantive problem in and for the field
- &mdash; to be able to benefit from an international perspective and engagement
- &mdash; to be an arena for productive interaction between mathematics educators, teachers, mathematicians, curriculum specialists, i.e. various agents in the field of mathematics education
- &mdash; to be able to build on what has already been substantial growth over some time in the field, and so on collective wisdom (with respect to both research and practice)
- &mdash; to be considered as significant, thus calling for an intellectual higher authority and voice on the problem
- &mdash; to provide possibilities for pro-active outcomes.

The ICMI EC wants the Studies to serve all those who, having professional interest in mathematics education, belong to our community. This means that an ICMI Study should not only or primarily aim at serving educational researchers, but has to provide a wider audience access to the reflections, experiences and research developed around a given theme, as well as point to its usefulness. In other words, the finality of an ICMI Study, in the spirit of the ICMI EC, is not to produce still another handbook of research in mathematics education, nor a collection of brilliant but personal papers. An ICMI Study is a collective work where the expertise of individuals is put at the service of a community. This implies a reflective and critical position, with specific attention to the language used so to ensure accessibility. The EC also wishes each ICMI Study to be a source of inspiration for educational action through the presentation and careful analysis of insightful examples, paying attention to the diversity of educational contexts and cultures and to the diversity of social and economic conditions, while allowing those voices not necessarily easily heard to be present.

The current ICMI EC is contemplating launching the 22nd ICMI Study before the end of its term in December 2009 --- or least providing the incoming EC with a potential theme. We have been building over the years a list of possible subjects, which include topics such as : Connection of mathematics and other discipline (from primary to university) ; Primary school math education ; History of mathematics education ; or Designing and using tasks for pedagogic purposes. But we feel the need to revamp and enlarge such a list.

The present editorial is thus A CALL FOR SUGGESTIONS OF THEMES for future ICMI Studies. These suggestions should be made taking into account that a Study must focus on a topic or issue of prominent current interest in mathematics education.

We have in mind typically adhering to the current organisational scheme for ICMI Studies, namely &mdash; after having selected a theme of a new Study, the ICMI EC appoints an International Programme Committee whose first task is to produce a Discussion Document in which a number of key issues and sub-themes

related to the theme of the Study are identified and described in a preliminary manner and a call for contributions is made ;

– on the basis of the submissions received, an international Study Conference is organised, constituting a working forum that investigates the theme of the Study ;

– and finally a Study Volume is prepared, presenting a state-of-the-art expert report on the Study theme.

While we have experienced and do appreciate the merit of this model, we are also open to suggestions about other possible organisational frameworks. The ICMI Studies are an essential component of the ICMI activities. Comments about the ICMI Studies programme are most welcome and can be made to any member of the ICMI Executive Committee, including myself. To be useful to the reflections of the current EC, your input should reach us no later than early 2009.

Bernard R. Hodgson, Secretary-General of ICMI, [bhodgson@mat.ulaval.ca](mailto:bhodgson@mat.ulaval.ca)

---

## 2. *Symposium Celebrating the Centennial of the ICMI*

Symposium Celebrating the Centennial of the ICMI (International Commission on Mathematical Instruction) - Rome  
5-8 March 2008

In 1908, during the fourth International Congress of Mathematicians, which took place in Rome from 6 to 11 April, was created the International Commission on the Teaching of Mathematics (Commissione Internazionale per l'insegnamento matematico, Commission Internationale de l'Enseignement Mathématique, Internationale Mathematische Unterrichtskommission). The first to formulate a proposal for the institution of an organisation of this type was David Eugene Smith, a professor at Teachers College of New York, who was profoundly interested in education and in the history of mathematics. The first president was Felix Klein, eminent mathematician and promoter of significant reforms in the teaching of mathematics in Germany. Klein was an unflagging and enthusiastic promoter of the commission during its early period. The initial goal of the commission was that to "promote an inquiry and publish a general report on current trends in secondary teaching of mathematics in the various countries". From that time, the Commission, which since 1954 has been known as the "International Commission on Mathematical Instruction" (ICMI), has gone through successive periods of more or less intense activity (connected with the dramatic events of the first half of the twentieth century) before arriving to the end of the 1960s, when it experienced a veritable renaissance based on new aims and work methodologies. In the last quarter of a century its activities and the lines of research have broadened and diversified, and have contributed to the construction of a new discipline, research in the teaching of mathematics. To celebrate the Centennial of the founding of the ICMI, an international symposium, entitled "The First Century of the International Commission on Mathematical Instruction : Reflecting and Shaping the World of Mathematics Education", was held in Rome, 5-8 March 2008 (<http://www.unige.ch/math/EnsMath/Rome2008/>). The International Programme Committee (IPC), was composed of sixteen members, with Ferdinando Arzarello as its president, while Marta Menghini represented the Organising Committee within the IPC. Palazzo Corsini, home of the Accademia Nazionale dei Lincei, and Palazzo Mattei di Paganica, home of the Enciclopedia Italiana, were the splendid venues for the symposium.

Taking as a point of departure the themes connected to ICMI activities over the course of its hundred year history (reforms in teaching of the sciences, teacher education, relationships between mathematicians and researchers in mathematics education, etc.), the symposium sought to identify the future directions of research in didactics and possible initiatives for improving the level of mathematics culture in the various countries. The symposium was subdivided into ten plenary talks, eight talks in parallel, five working groups. and an afternoon reserved for Italian teachers, with lectures by scholars from Italy and abroad, see Menghini et al., 2008 ; Symposium ` , 2008). The activities of the "Italian afternoon" were broadcast via videoconference to fifty schools throughout Italy.

The talks dealt with a wide variety of topics : the origins of the ICMI and the roles played by Klein and Smith ; ICMI's

renaissance at the end of the 1960s and the emergence of a new field of research ; the dialectic between rigour and intuition in the teaching of mathematics ; the relationships between pure and applied mathematics and the emphasis that should be given to modelling in teaching and learning of the mathematics ; the interactions between research and practice ; the relationship between centres and peripheries of the world ; teacher training ; the relationships between mathematics and teaching of mathematics and between mathematics education and technology, society, and other disciplines. Some 200 participants from 43 countries the world over took part in the congress. The symposium ended with an excursion which, like a hundred years ago, took participants to visit the Villa d'Este at Tivoli and Hadrian's Villa, both rich in historical grandeur.

The website on the history of ICMI

On the occasion of the congress a website dedicated to the history of ICMI was created under the direction of Fulvia Furinghetti and Livia Giacardi

(<http://www.icmihistory.unito.it/>).

It delineates the most significant events and key figures of the life of ICMI through documents, images and interviews. The site is divided into six sections : Timeline ; Portrait Gallery ; Documents ; The Affiliated Study Groups ; The International Congresses on Mathematical Education ; Interviews and Film Clips. The section Timeline marks the most important moments in the history of the ICMI, with each fact documented with references to the original sources. The Portrait Gallery contains biographic cameos of those who have passed away, with the aim of making evident their roles within the ICMI, their contributions to the study of problems inherent in mathematics teaching, and their publications that are expressly dedicated to mathematics teaching. The sections of the Affiliated Study Groups contains the short history of these groups, with particular reference to the motivations and the circumstances that fostered their creation. The section International Congresses on Mathematical Education gathers the main information about the congresses since the beginning (1969). Some important witnesses of the most recent events in the life of ICMI were interviewed. The videotapes of the interviews are available in the section Interviews and Film Clips.

### References

Menghini, M., Furinghetti, F., Giacardi, L., & Arzarello, F. (Eds.) (2008). The first century of the International Commission on Mathematical Instruction (1908-2008). Reflecting and shaping the world of mathematics education, Rome : Istituto della Enciclopedia Italiana.

Symposium for the Rome 08 ICMI Centennial (2008). *Progetto Alice*, 9(25).

Permanent website of the Symposium :

<http://www.unige.ch/math/EnsMath/Rome2008/welcome.html>

Ferdinando Arzarello, Fulvia Furinghetti, Livia Giacardi, Marta Menghini

---

*3. Proceedings of the Symposium Celebrating the Centennial of the ICMI*

ISTITUTO DELLA ENCICLOPEDIA ITALIANA FONDATA DA GIOVANNI TRECCANI

The First Century of the International Commission on Mathematical Instruction (1908-2008). Reflecting and Shaping the World of Mathematics Education

Edited by M. Menghini, F. Furinghetti, L. Giacardi, F. Arzarello

## CONTENTS

### Introduction

HYMAN BASS, Moments of the life of ICMI

JEREMY KILPATRICK, The development of mathematics education as an academic field - Reaction by JEAN LUC DORIER DINA TIROSH and PESSIA TSAMIR, Intuition and rigor in mathematics education - Reaction by ALDO BRIGAGLIA

MOGENS NISS, Perspectives on the balance between application & modelling and "pure" mathematics in the teaching and learning of mathematics - Reaction by TOSHI IKEDA

JO BOALER, The relationship between research and practice in mathematics education : International examples of good practice - Reaction by JOAO DA PONTE

GERT SCHUBRING, The origins and early incarnations of ICMI

FULVIA FURINGHETTI, MARTA MENGhini, FERDINANDO ARZARELLO, -LIVIA GIACARDI, ICMI Renaissance : The emergence of new issues in mathematics education

BIENVENIDO NEBRES, Centres and peripheries in mathematics education - Reaction by GELSA KNIJNIK

Panel on ICMI's challenges and future : MORTEN BLOMHØJ ; MAMOKGETHI SETATI

MICHÈLE ARTIGUE, ICMI : One century at the interface between mathematics and mathematics education - Reflections and perspectives

BERNARD R. HODGSON, Some views on ICMI at the dawn of its second century

### Short Talks (Coordinators Alan Bishop and Lee Peng Yee)

EILEEN F. DONOGHUE - The inception of ICMI : David Eugene Smith and the founding of ICTM ; ALAN BISHOP - The past four decades : consolidation and diversification ; DEREK HOLTON - The process of an ICMI Study : The teaching and learning of mathematics at university level ; FREDERICK K.S. -LEUNG - The significance of the ICMI Study on mathematics education in East Asia and the West ; UBIRATAN D'AMBROSIO - ICMI and its influence in Latin America ; JILL ADLER - The development of AFRICME ; CLAUDI ALSINA - What is the impact of hosting an ICME for the organizing country ? - The case of ICME8 in Spain ; LIM-TEO SUAT KHOH - ICMI Activities in East and Southeast Asia : Thirty years of academic discourse and deliberations

### Working Groups - Reports

BILL BARTON & FREDERIC GOURDEAU : Disciplinary mathematics and school mathematics ; DEBORAH BALL & BARBRO GREVHOLM : The professional formation of teachers ; HILARY POVEY & ROBYN -ZEEVENBERGEN : Mathematics education and society ; MARCELO BORBA & MARIOLINA BARTOLINI BUSSI : Resources and technology throughout the history of ICMI ; GILAH LEDER & LUIS RADFORD : Mathematics education : An ICMI perspective.

## ORDERING THE VOLUME

The proceedings of the Symposium held on the occasion of the Centennial of ICMI in Rome, from March 5th to March 8th, 2008, are now being published.

The price of the volume comes to 60 Euros (about 90 USD) shipping fees included.

Participants of ICME's and of conferences of the affiliated groups of ICMI, in the period 2004 - 2008, may enjoy a special 33 % reduction. To receive the volume, we ask that you send in the following request :

I would like to receive a copy of the volume :

The First Century of the International Commission on Mathematical Instruction (1908-2008). Reflecting and Shaping the World of Mathematics Education

o at the price of 40 Euros, shipping and handling included ; I was a participant of ICME/PME/HPM.....in the period 2004 - 2008 o at the price of 60 Euros, shipping and handling included Please send the volume to the following address :

I will be paying by : o Credit Card Amount to Charge : \_\_\_\_\_ Type of Card : \_\_\_\_ Name on Card : \_\_\_\_ Card Number : \_\_\_\_ Expiration Date : \_\_\_\_ Signature : Bank transfer (please send a copy) to : Istituto della Enciclopedia Italiana IBAN IT48 L010 0503 2060 0000 0007 699

The request may be sent to By Mail : Istituto della Enciclopedia Italiana Ufficio Vendita Diretta  
Piazza della Enciclopedia Italiana, 4 I - 00186 Roma (Italia)

By Email : venditadiretta@treccani.it

By fax : +39 06 68982294

For all other information, please use the above addresses. The request form is also available at the Symposium's website : <http://www.unige.ch/math/EnsMath/Rome2008>

---

#### 4. ICTMA 14

Second Announcement &mdash; Call for papers

The International Community of Teachers of Mathematical Modelling and Applications (ICTMA) invites you to participate in the 14th International Conference on the Teaching of Mathematical Modelling and Applications (ICTMA14).

The conference will take place at the University of Hamburg in Germany and is scheduled from Monday, 27th July to Friday, 31st July 2009. Invited are experts in the field as well as young researchers interested in research on the teaching of applications and modelling in all areas of mathematics education - primary through secondary schools, as well as colleges and universities.

Organising Committee : Professor Gabriele Kaiser (Chair, University of Hamburg, Department of Education), Dr. Rita Borromeo Ferri (Co-chair, University of Hamburg, Department of Education), Working group on Mathematics Education at the University of Hamburg, Department of Education

Outline of the Conference Programme

Aim of the conference : The aim of the conference is to provide a forum for the presentation and exchange of information, experiences, and ideas relating to the teaching, learning and assessment of mathematical modelling, mathematical models and applications of mathematics at primary, secondary and tertiary level.

The following issues will be tackled by a variety of activities :

\* Pedagogical issues, such as the understanding of modelling, promotion of modelling competencies, cognitive aspects ; \* Assessment of modelling activities in school and universities ; \* Connections to industrial or commercial practice, mathematics at the workplace ; \* Influences of technology ; \* Cross-cultural aspects and international studies  
Conference programme : The conference programme will include

\* Plenary lectures followed by reactions of invited experts in the field \* Paper presentations by conference participants in parallel sessions \* Panel discussion by invited experts on modelling perspectives around the world

Plenary lectures and reacting experts :

Werner Blum (University of Kassel, Germany) Can Modelling be Taught and Learnt ? Some Answers from Empirical Research.

Reactor : Marcelo de Carvalho Borba (State University of Sao Paulo at Rio Claro, Brazil)

Gloria Stillman (Melbourne University, Australia) Applying Metacognitive Knowledge and Strategies in Applications and Mathematical Modelling Tasks at Secondary School

Reactor : Rita Borromeo Ferri (University of Hamburg, Germany)

Helmut Neunzert (Fraunhofer-Institut fuer Techno- und Wirtschaftsmathematik (ITWM), Kaiserslautern, Germany)  
Mathematical Modelling and a New Role for Mathematics as Key Technology  
Reactor : Jens Struckmeier (University of Hamburg, Germany) - Subject to confirmation

Richard Lesh (Indiana University, USA ), Helen Doerr (Syracuse University, USA) Models and Modelling : Perspectives on Teaching and Learning Mathematics for the 21st Century

Chris Haines (City University London, Great Britain) Drivers for Mathematical Modelling : Pragmatism in Practice  
Reactor : Katja Maaß (Educational University Freiburg, Germany)

Panel discussion :

Theme : Modelling perspectives around the world - State-of-the-art Contributions by :

\* Toshikazu Ikeda (Yokohama National University, Japan) \* Peter Galbraith (University of Queensland, Australia)  
\* Jonei Cerqueira Barbosa (State University of Feira de Santana, Brazil) \* Pauline Vos (University of Amsterdam, Netherlands) \* Bharath Sriraman (University of Montana, USA)

Conference secretary and conference website : <http://www.ictma14.de> or <http://www.ictma2009.de> :

For further information (e.g., personal invitation letter) please contact the conference secretary Karen Stadlander (University of Hamburg, Department of Education) [ictma@erzwiss.uni-hamburg.de](mailto:ictma@erzwiss.uni-hamburg.de) or visit the website of the conference, which will be updated regularly.

---

### 5. *New e-journal : Educational Designer*

ISDDE - International Society for Design and Development in Education You might like to look at ISDDE's new e-journal Educational Designer, which has just been launched.

You will find it at <http://www.educationaldesigner.org/>

We hope you find this first issue interesting. We look forward to hearing your comments on it &mdash; and perhaps, in the future, your contributions to it. Hugh Burkhardt <[Hugh.Burkhardt@nottingham.ac.uk](mailto:Hugh.Burkhardt@nottingham.ac.uk)>

---

### 6. *Calendar of Events of Interest to the ICMI Community*

ATCM-13 : 13th Asian Technology Conference in Mathematics Bangkok, Thailand, December 15-19, 2008  
<http://atcm.mathandtech.org>

3rd international conference to review research on Science, TEchnology and Mathematics Education Homi Bhabha Centre for Science Education (TIFR), Mumbai, India, January 5-9, 2009

<http://web.gnowledge.org/episteme3/>

CERME 6 : Sixth Conference organised by the European Society for Research in Mathematics Education University Lyon 1, France, January 27 - February 1, 2009

<http://ermeweb.free.fr/cerme6.php>

3rd International Symposium on Mathematics and its Connections to the Arts and Sciences Moncton, New Brunswick, Canada, 21st-23rd of May, 2009

<http://www.umoncton.ca/freimanv/mac3/index.htm>

5th Asian Mathematical Conference Putra World Trade Centre, Kuala Lumpur, Malaysia, June 22 - 26, 2009

<http://math.usm.my/amc2009/>

ICTMT-9 - 9th Int Conf on Technology in Mathematics Teaching Metz, France, July 4-8, 2009

<http://www.ictmt9.org>

ICTMA 14 - 14th International Conference on the Teaching of Mathematical Modelling and Applications University of Hamburg, Germany, July 27-31, 2009

<http://www.ictma.net>

SEMT '09 - 10th bi-annual conference on Elementary Mathematics Teaching, "The development of mathematical understanding" Prague, August 23-28, 2009

<http://kmdm.pedf.cuni.cz>

"Models in Developing Mathematics Education" The Mathematics Education into the 21st Century Project Dresden, Saxony, Germany, September 11-17, 2009

alan@rogerson.pol.pl

SRD'09 - Southern Right Delta'09 7th Southern Hemisphere Conference on the Teaching and Learning of Undergraduate Mathematics and Statistics Gordons Bay, South Africa, 29 November-4 December 2009

<http://www.delta2009.co.za>

---

## 7. SUBSCRIBING TO ICMI News

There are two ways of subscribing to ICMI News :

1. Click on <http://www.mathunion.org/ICMI/Mailinglist> with a Web browser and go to the "Subscribe" button to subscribe to ICMI News online.
2. Send an e-mail to [icmi-news-request@mathunion.org](mailto:icmi-news-request@mathunion.org) with the Subject-line :

Subject : subscribe

In both cases you will get an e-mail to confirm your subscription so that misuse will be minimized. ICMI will not use the list of ICMI News addresses for any purpose other than sending ICMI News, and will not make it available to others.

Previous issues can be seen at :

<http://www.mathunion.org/pipermail/icmi-news>

=====

---

ICMI-News mailing list [ICMI-News@mathunion.org](mailto:ICMI-News@mathunion.org) <http://www.mathunion.org/mailman/listinfo/icmi-news>